

TISSUE ENGINEERING SCAFFOLDS PROMOTING MATRIX PROTEIN PRODUCTION

Abstract

Matrix-enhancing molecules, such as TGF- β , are conjugated to or immobilized on scaffolds to increase ECM production by cells for tissue engineering, tissue regeneration and wound healing applications.. The matrix-enhancing molecule is conjugated to a tether, such as polyethylene glycol (PEG) monoacrylate, for attachment to a tissue engineering or cell growth scaffold. The matrix-enhancing molecule retains activity after attachment to the scaffold, and causes cells growing in or on the scaffold to increase extracellular matrix (ECM) production, without substantially increasing proliferation of the cells, even when the scaffold additionally contains cell adhesion ligands. The increased ECM produced by the cells aids in maintaining the integrity of the scaffold, particularly when the scaffold is degradable, either by hydrolysis or by enzymatic degradation.

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